

**Business Procedures**

**Load Resource Qualification for Resources Participating in the Aggregate Distributed Energy Resource (ADER) Pilot Project**

**ADER Telemetry Validation, SCED and AS Qualification Procedure**

**Version 3.0**

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# **TELEMETRY ACRONYMS**

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| **ACRONYM** | **DESCRIPTION** |
| **BP** | **Base Point (analog value in MW)** |
| **LPC** | **Low Power Consumption** |
| **MPC** | **Max Power Consumption** |
| **NPF** | **Net Power Flow (same as Net Power Consumption)** |
| **NSRS** | **Non-Spin Responsibility**  |
| **NSSC** | **Non-Spin Schedule** |
| **ECRS** | **ECRS Responsibility**  |
| **ECSC** | **ECRS Schedule** |
| **RST** | **Resource Status Code** |
| **SCED** | **Security Constrained Economic Dispatch** |
| **UDBP** | **Updated Desired Basepoint** |

**This procedure applies to all ADERs seeking qualification to participate in the ADER Pilot Project, including those operating as a Non-Controllable Load Resource (NCLR) or as a Aggregate Load Resource (ALR) and consists of 2 main elements:**

* **Telemetry Validation**
* **Ancillary Service Qualification**

It is the **responsibility of the Market Participant seeking ADER qualification to be aware of and ensure compliance with its obligations under the ERCOT Protocols and the ADER Pilot Project Governing Document – Phase 3.**

The following sections will describe the details for each qualification component and applicable Resource type, NCLR or ALR..

**It is possible that the information below may have omitted additional relevant information or contain incomplete information. The information below is provided “AS IS” and shall not be construed as waiving or altering any obligations under the ERCOT Protocols and the** **ADER Pilot Project Governing Document – Phase 3.**

# **PREREQUISITES FOR ADER QUALIFICATION**

All ADERs requesting telemetry validation and qualification testing must have active telemetry in the Network Operations Model providing telemetry that is being updated every 2 seconds and capable of being validated as described in the ADER Pilot Project Governing Document – Phase 3 and this procedure.

Resources participating in the ADER Pilot Project starting with the implementation of Phase 3 will have the option to participate as either Aggregate Load Resources (ALRs) or Non-Controllable Load Resources (NCLRs). Resources participating as an ALR will be modeled as a Controllable Load Resource (CLR) in ERCOT systems. ALRs participating in the ADER Pilot Project are not required to provide primary frequency response and will not be required to submit PFR test results into the Net Dependable Capability and Reactive Capability (NDCRC) application.

# **Part 1: The following section outlines the telemetry validation and qualification testing for resources participating as ALRs**

## **TELEMETRY VALIDATION TEST**

ADERs participating as ALRs using Premise Level Telemetry

1. The ADER telemetry values are to be a reasonable representation of the aggregate sum of the import and export values of the ADER member Premises plus the established offset.
2. ERCOT will aggregate the Premise-level 15-minute interval meter data of all sites associated with the ADER and will compare this aggregate data to the QSE provided telemetry values for Net Real Power Consumption, averaged over each 15-minute interval during the period being evaluated, less the offset for the ADER.
3. ERCOT will conduct this telemetry validation as part of the ADER qualification process and periodically during the term of the Pilot Project. This process will encompass all 15-minute settlement intervals during the evaluation period. The initial evaluation period will consist of an 8-hour window mutually agreed upon by ERCOT and the QSE prior to the day of the test.
4. During the telemetry validation evaluation period, the QSE may request to conduct a SCED Qualification Test separately from its telemetry validation or test concurrently. A successful SCED Qualification Test is required for ALRs to participate in the ERCOT market. It is also a prerequisite requirement prior to the ALR providing any ancillary services. See SCED Qualification Test section below.
5. The telemetry must validate to meet all of the following conditions:
	1. *Condition 1*: Only intervals where the aggregate Premise-level 15-minute Settlement interval meter data meets one of the following will be evaluated:
		* When the aggregate Premise-level 15-minute interval Settlement meter data shows as net withdrawing, the Resource’s metered withdrawals must equal or exceed 0.1 MW
		* When the aggregate Premise-level 15-minute interval Settlement meter data shows as net injecting (negative value in the meter data), the Resource’s metered injections must equal or exceed -0.1 MW
	2. *Condition 2*: Of these intervals being evaluated, the telemetered NPC value minus the Resource specific assigned offset must be within 10% of the aggregate Premise-level 15-minute interval Settlement meter data
	3. *Condition 3*: During the 8-hour evaluation period, at least 50% of the intervals must meet condition 1 above.

ADERs participating as ALRs using Device Level Telemetry

1. If the ADER telemetry values represent the sum of the Devices under control, the QSE will be required to provide device-level sub-meter data for each site in the aggregation contributing to the device-level telemetry to ERCOT.
2. The device-level sub-meter data being submitted must meet the requirement specified in the ADER Device Level Telemetry Validation Instructions document found [here](https://www.ercot.com/mktrules/pilots/ader). The data will consist of one minute interval energy data for each device expressed in kWh.
3. ERCOT will conduct this telemetry validation as part of the ADER qualification process and periodically during the term of the Pilot Project with each test encompassing all 15-minute Settlement intervals during the evaluation period. The evaluation period for the initial validation will consist of an 8-hour window that is mutually agreed upon by ERCOT and the QSE prior to the day of the test.
4. During the evaluation period, the QSE may request to conduct a SCED Qualification test separately from its telemetry validation or test concurrently. A successful SCED Qualification Test is required for ALRs to participate in the ERCOT market. It is also a prerequisite requirement prior to the ALR providing any ancillary services.. See SCED Qualification Test section below.
5. ERCOT will use the following 2-step validation process for the QSEs device-level telemetry.
6. Step 1: The ADER Net Power Consumption (NPC) telemetered values minus offset averaged over each 15-minute interval must be within 10% of the aggregate of the device-level sub-meter (data recorder) data, averaged over each 15-minute interval during the period being evaluated.

 All of the following conditions must be met in Step 1:

* 1. *Condition 1:* Only intervals where the aggregate device-level data, averaged over each 15-minute Settlement window, are greater than 10% of the Resource’s requested energy capability will be evaluated as follows:
* When the aggregate device-level data shows as net injecting, the Resource’s injections must exceed 10% of the Maximum Injection Capability, OR
* When the aggregate device-level data shows as net withdrawing, the Resource’s withdrawals must exceed 10% of the Maximum Withdrawal Capability.
	1. *Condition 2:* Of these intervals being evaluated, the telemetered NPC value less the Resource specific assigned offset must be within 50% of the aggregate device-level data averaged over each 15-minute Settlement Interval when the Total Expected Registered Capacity (column I on the DOTA ADER Summary tab) is less than or equal to 1 MW, or within 10% of the aggregate device-level data averaged over each 15-minute Settlement Interval when the Total Expected Registered Capacity is greater than 1 MW.
	2. *Condition 3: During the 8-hour evaluation period, at least 50% of the intervals* must meet condition 1 above.

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## **SCED QUALIFICATION**

A SCED Qualification test is only applicable to ADERs participating as ALRs. As noted above, a SCED qualification test can be either performed simultaneously with the telemetry validation test or separately. To successfully complete a SCED qualification test, the ALR must be under SCED dispatch control. During the SCED test period, ERCOT will temporarily show the ALR as SCED qualified.

\*\*This test will not use a bid to buy from the QSE to generate SCED base points, ERCOT will manually produce and send a basepoint to the QSE for the purpose of this test.\*\*

1. The SCED qualification test can be performed during the same test period as the telemetry validation testing, or separately at the discretion of the QSE. Should the QSE conduct telemetry validation and SCED Qualification simultaneously, the ALR only needs to be showing a Resource Status Code of ONCLR during the SCED qualification test and can show a status of OUTL for the remainder of the evaluation period.
2. The ALR should telemeter its MPC and LPC so that the ALR has a response range of at least 80% of their registered dispatch capability as shown in the Details of the Aggregation (DOTA).
3. The QSE will need to set the Resource Status to ONCLR which will put the ALR under SCED dispatch control. The resource should start at either its MPC or LPC, and move to the opposite position, hold, then back to the original point. For explanation purposes, the following instructions will be based on a QSE that chooses to start the test at its LPC.
4. The resource should start at its LPC. The ERCOT testing coordinator will have SCED dispatch the ALR to its MPC by issuing a manual UDBP. The QSE should set the ramp rate so that this occurs over a single SCED interval (or 5 minutes). In this example, the ALR will ramp from its LPC to MPC from 13:00 to 13:05 and then stay at its MPC from 13:05 to 13:10.
5. The ERCOT testing coordinator will issue a second manual UDBP via SCED ramping the resource from MPC back to LPC over a single SCED interval (or 5 minutes). The ALR will ramp from its MPC to LPC from 13:10 to 13:15 and then hold at its LPC from 13:20 to 13:25.
6. Upon completion of the test, the ERCOT testing coordinator will remove the manual dispatch and instruct the QSE to set its RST to OUTL.

## **NON-SPIN QUALIFICATION**

The ALR must be SCED qualified as a prerequisite for this test. The QSE will also need to request a Provisional Qualification for the ALR (and themselves if not already qualified) several days in advance of the test.

The test procedure will consist of the following steps:

1. The QSE needs to schedule the test about a week before the test date with the ERCOT testing coordinator. A provisional qualification will go into effect the day before the scheduled test date.t.
2. On the day of the test ERCOT will contact the QSE prior to the start of the test to manually adjust Ancillary Service telemetry to facilitate a test. The ICCP points that need to be adjusted are NSRS, NSSC, and the RST should be set to ONCLR. MPC and LPC should also be configured appropriately to current resource conditions.
3. The QSE should change its resource’s NSSC within 20 minutes of the ICCP instruction being issued.
4. After a brief period (approximately 5 minutes) the ERCOT Testing Coordinator will issue a recall instruction via an ICCP instruction. Following the recall instruction, the ALRs is required the ALRs is required to update its NSSC telemetry to reflect its obligation within 3 hours. If the resource is not carrying a Non-Spin Responsibility at that time, the QSE is expected to change the RST to OUTL and the NSRS and NSSC to 0 MW.

## **ECRS QUALIFICATION**

The ALR must be SCED qualified as a prerequisite for this test. The QSE will also need to request a Provisional Qualification for the ALR (and themselves if not already qualified) several days in advance of the test.

The test procedure will consist of the following steps:

1. The QSE needs to schedule the test about a week before the test date with the ERCOT testing coordinator. A provisional qualification will go into effect the day before the scheduled test date
2. On the day of the test ERCOT will contact the QSE prior to the start of the test to manually adjust Ancillary Service telemetry to facilitate a test. The ICCP points that need to be adjusted are ECRS, ECSC, and the RST should be set to ONCLR. MPC and LPC should also be configured appropriately to current resource conditions.
3. The QSE should change its resources ECSC within 1 minute of the ICCP instruction being issued and at that point needs to follow the BP and UDBP instructions.
4. After a brief period (approximately 5 minutes) the ERCOT Testing Coordinator will issue a recall instruction via an ICCP instruction. Following the recall instruction, the ALRs is required the ALRs is required to update its ECSC telemetry to reflect its obligation within 3 hours. If they don’t have an ECRS Responsibility, they should change their RST to OUTL and their ECRS and ECSC to 0 MW.

# **Part 2: The following section outlines the telemetry validation and qualification testing for resources participating as NCLRs****.**

## **TELEMETRY VALIDATION TEST**

NCLR using Premise Level Telemetry

1. The NCLRs telemetry values are to be a reasonable representation of the aggregate sum of the import and export values of the ADER member Premises plus the established offset.
2. ERCOT will aggregate the Premise-level 15-minute interval meter data to the NCLR level plus the assigned Resource offset and will compare this data to the QSE telemetry values for NPC averaged over each 15-minute interval during the period being evaluated.
3. ERCOT will conduct this telemetry validation as part of the NCLR qualification process and periodically during the term of the Pilot Project with each test encompassing all 15-minute Settlement Intervals during the evaluation period.
4. The telemetry must validate to the following conditions:
	1. *Condition 1*: Only intervals where the aggregate Premise-level 15-minute interval meter data meets one of the following will be evaluated:
		1. When the aggregate Premise-level 15-minute interval Settlement meter data shows as net withdrawing, the Resource’s metered withdrawals must equal or exceed 0.1 MW, OR
		2. When the aggregate Premise-level 15-minute interval Settlement meter data shows as net injecting (negative value in the meter data), the Resource’s metered injections must equal or exceed -0.1 MW
	2. *Condition 2*: Of these intervals being evaluated, the telemetered NPC value minus the Resource specific assigned offset must be within 10% of the aggregate Premise-level 15-minute interval Settlement meter data.
	3. *Condition 3*: During the 8-hour evaluation period, at least 50% of the intervals must meet condition 1 above.

NCLR using Device Level Telemetry

1. If the NCLRs telemetry values represent the sum of the devices under control, the QSE will be required to provide device-level sub-meter (data recorder) data for each site in the aggregation contributing to the device-level telemetry to ERCOT upon request.
2. The device-level sub-meter data being submitted must meet the requirement specified in the NCLR Device Level Telemetry Validation Instructions document found [here](https://www.ercot.com/mktrules/pilots/ader). The data will consist of five minute interval energy data for each device expressed in kWh.
3. ERCOT will use the following 2-step validation process for the QSEs device-level telemetry.

Step 1: The NCLR NPC telemetered values minus offset averaged over each 15-minute interval must be within 10% of the aggregate of the device-level sub-meter (data recorder) data, averaged over each 15-minute interval during the period being evaluated.

All of the following conditions must be met in Step 1:

1. *Condition 1:* Only intervals where the aggregate device-level data, averaged over each 15-minute Settlement window, are greater than 10% of the Resource’s requested energy capability will be evaluated as follows:
	* + - When the aggregate device-level data shows as net injecting, the Resource’s injections must exceed 10% of the Maximum Injection Capability (column E on the DOTA ADER Summary tab), OR
			- When the aggregate device-level data shows net withdrawing, the Resource’s withdrawals must exceed 10% of the Maximum Withdrawal Capability (column D on the DOTA ADER Summary tab).
2. *Condition 2*: Of these intervals being evaluated, the telemetered NPC value less the Resource specific assigned offset must be within 50% of the aggregate device-level data averaged over each 15-minute Settlement Interval when the Total Expected Registered Capacity is less than or equal to 1 MW, or 10% of the aggregate device-level data averaged over each 15-minute Settlement Interval when the Total Expected Registered Capacity is greater than 1 MW.
3. *Condition 3*: During the 8-hour evaluation period, at least 50% of the intervals must meet condition 1 above.

Step 2: ERCOT will instruct the QSE to deploy the NCLR to a mutually agreed value but one that represents a significant portion of its capability. This instruction will last for at least one full 15-minute Settlement Interval. The change in the telemetered NPC in response to the instruction must be within 10% of the total response observed in the aggregate Premise-level 15-minute interval meter data during each interval in the sustained response period.

In addition, the telemetry validation as part of the qualification ERCOT may also perform additional periodic validation of the telemetry during the term of the Pilot Project.

## **NON-SPIN QUALIFICATION**

The QSE will need to request a Provisional Qualification for the NCLR(and themselves if not already qualified) several days in advance of the test.

The test procedure will consist of the following steps:

1. The QSE needs to schedule the test about a week before with the ERCOT testing coordinator. A provisional qualification will go into effect prior to the scheduled test date.
2. ERCOT will contact the QSE prior to the start of the test to manually adjust Ancillary Service telemetry to facilitate a test. The ICCP points that need to be adjusted are NSRS, NSSC, and the RST. MPC and LPC should also be configured appropriately to current resource conditions.
3. As a NCLR, the ADER should show a Resource Status of ONRL.
4. The NCLR will be dispatched manually by ERCOT as an Off-Line Resource. They should expect to get an XML instruction for their full Non-Spin Responsibility.
5. The NCLR should change their NSSC within 1 minute of the XML instruction being issued.
6. To successfully pass this test, within thirty minutes of the receipt of the ERCOT Dispatch Instruction by the Load Resource’s QSE, the Load Resource’s response shall not be less than 95% of the requested MW deployment, nor more than 150% of the lesser of the following:
	* 1. The Resource’s Responsibility for Non-Spin ; or
		2. The requested MW deployment.

The requested MW deployment will be the sum of the Resource’s Responsibility for NSRS and the telemetered additional capacity between the net power consumption and the Low Power Consumption (LPC).

1. After about one hour the ERCOT Operator will issue a recall instruction via an XML instruction. The NCLR should change their telemetry back to show their NSSC as required within 3 hours. If they don’t have a Non-Spin Responsibility, they should change their RST to OUTL and their NSRS and NSSC to 0 MW.

## **ECRS QUALIFICATION**

The QSE will need to request a Provisional Qualification for the ADER (and themselves if not already qualified) several days in advance of the test.

The test procedure will consist of the following steps:

1. The QSE needs to schedule the test about a week before with the ERCOT testing coordinator. A provisional qualification will go into effect prior to the scheduled test date.
2. ERCOT will contact the QSE prior to the start of the test to manually adjust Ancillary Service telemetry to facilitate a test. The ICCP points that need to be adjusted are ECRS, ECSC, and the RST. MPC and LPC should also be configured appropriately to current resource conditions.
3. As a NCLR, the ADER should show a Resource Status of ONECL.
4. The ADER will be dispatched manually by ERCOT as an Off-Line Resource. They should expect to get an XML instruction for their full ECRS Responsibility.
5. The ADER should change their ECSC within 1 minute of the XML instruction being issued.
6. To successfully pass this test, within ten minutes of the receipt of the ERCOT Dispatch Instruction by the Load Resource’s QSE, the Load Resource’s response shall not be less than 95% of the requested MW deployment, nor more than 150% of the lesser of the following:
	* 1. The Resource’s Responsibility for ECRS ; or
		2. The requested MW deployment.

The requested MW deployment will be the sum of the Resource’s Responsibility for ECRS and the telemetered additional capacity between the net power consumption and the Low Power Consumption (LPC).

1. After about one hour the ERCOT Operator will issue a recall instruction via an XML instruction. The ADER should change their telemetry back to show their ECSC as required within 3 hours. If they don’t have an ECRS Responsibility, they should change their RST to OUTL and their ECRS and ECSC to 0 MW.